REMARKS

Claims 1-124 are pending. In the Office Action dated May 23, 2006, the Examiner rejected claims 1-124 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,477,614 to Leddige et al. in view of U.S. Patent No. 5,546,591 to Wurzburg et al. and further in view of U.S. Patent Application Publication 2004/0199730 to Eggers et al. Applicant respectfully traverses the rejection.

Eggers is not prior art to the present application

As a preliminary matter, Applicant respectfully submits that U.S. Patent Application Publication 2004/0199730 to Eggers ("the Eggers publication") is not prior art to the present application, and cannot be used to make a § 102 or § 103 rejection of Applicant's claims.

The present application has a filing date of June 20, 2003. The Eggers publication is a published U.S. patent application. Eggers' U.S. patent application was filed on March 26, 2004. Accordingly, the Eggers reference has an effective date of March 26, 2004 under 35 U.S.C. § 102(e). Applicant's filing date precedes the Eggers reference's filing date, and therefore Eggers was not described in "an application for patent ... by another filed in the United States before the invention by the applicant." 35 U.S.C. §102(e)(1).

The Eggers application does claim priority to a German patent application filed on March 26, 2003. However, Eggers' foreign priority claim is unavailable for the purposes of Eggers' use as prior art under §102(e). See MPEP 2136.03 ("Reference's Foreign Priority Date ... Cannot Be Used as the 35 U.S.C. 102(e) Reference Date"). Section 102(e) is explicitly limited to applications for patent "filed in the United States" before Applicant's invention. Accordingly, the Eggers reference does not receive the benefit of its German priority date for the purposes of § 102(e).

Because the Eggers reference is not prior art to the present application, Applicant submits the Examiner's rejection of claims 1-124 as unpatentable over Leddige in view of Wurzburg in further view of Eggers is improper and should be withdrawn. In particular, the Examiner's rejection of claims 13-18, 20-21, 38-43, 61-66, 68-69, 87-92, 94-95, 113-118, and 120-121 appear to rely specifically on the Eggers reference. At least because the Eggers

reference is disqualified, Applicant respectfully submits that the rejection of claims 13-18, 20-21, 38-43, 61-66, 68-69, 87-92, 94-95, 113-118 and 120-121 is improper and should be withdrawn.

Discussion of technological examples

The disclosed embodiments of the invention will now be discussed in comparison to the applied references. Of course, the discussion of the disclosed embodiments, and the discussion of the differences between the disclosed embodiments and the subject matter described in the applied references, do not define the scope or interpretation of any of the claims. Instead, such discussed differences merely help the Examiner appreciate important claim distinctions discussed thereafter.

Disclosed examples of the invention include memory modules having memory hubs that monitor the utilization of the memory module and direct devices of the memory module to a reduced power state when the module is not being used at a desired level. See Abstract. Embodiments of the invention therefore allow power-saving techniques to be applied selectively. This selective application is in contrast with conventional systems that are implemented across an entire system for example, placing a system in a standby mode. See ¶ 33.

U.S. Patent Number 6,477,614 to Leddige has been cited under § 103 . The patent discloses a computer system memory module with a bi-directional repeater hub. See Abstract. As the Examiner acknowledges, Leddige fails to disclose an activity sensing device to monitor the activity of the memory module. See Office Action, page 4. Leddige is limited to the general disclosure of a computer system memory module.

U.S. Patent Number 5,546,591 to Wurzburg has been cited under §103. Wurzburg discloses local power management units, each located at the controller of a peripheral component attached to a personal computer. See col. 2, lines 10-17. Accordingly, Wurzburg recites local power management units for controlling power to keyboards, display screens, printers, modems, and disk drives. See col. 1, lines 23-25. The power management unit at the controller controls the application of power to its peripheral component. See col. 2, lines 18-20. Wurzburg does not disclose a power management unit controlling power to a memory device or a memory module. Furthermore, Wurzburg discloses that the local power management units

communicate with an activity monitor located in a central power management unit. The activity monitor outputs a signal to a state machine. See Fig. 2 and col. 3, lines 34-39. However, the Wurzburg patent does not describe *any* functional relationship between the activity monitor and either the state machine or the local power management units. Instead, the Wurzburg patent simply describes the connections to and from the activity monitor, which are readily apparent from the figures themselves. Thus, Wurzburg does not disclose that the activity monitor indicates when the activity of a memory module is not of a desired level. Nor does Wurzburg disclose a module power controller that is responsive to the output of the activity sensing device. In fact, the Wurzburg patent discloses just the opposite, *i.e.,* an activity sensing device that is responsive to the output of the module power controller since the output of the disclosed module power controller is applied to the input of the activity sensor. Furthermore, Wurzburg fails to disclose activity monitoring at a local level. Instead, Wurzburg discloses activity monitoring at a system-wide level and power control implemented locally at individual peripheral devices.

Significantly, none of the cited references, taken either alone or a combination, disclose a memory module having an activity monitor. While individual components contained in applicant's memory module may be found individually in cited references, that is true with virtually any electronic convention. To support an obviousness rejection, the prior art must disclose or suggest combining these individual components to provide the structure and capabilities of the applicant's memory modules and systems. In this case, however, the cited references do not suggest or motivate the claimed combinations.

Claim Rejections – 35 U.S.C. § 103

Turning now to the claims, independent claim 1 specifies a memory module comprising an activity sensing device, and a module power controller that is responsive to the output of the activity sensing device. Independent claim 26 specifies a memory hub including an activity sensing device and a module power controller operable to direct the memory module to a reduced power state as indicated by output of the activity sensing device. Independent claim 48 recites a memory system including a plurality of memory modules, at least some including an activity sensing device and a module power controller that is responsive to the output of the activity sensing device. Independent

claim 74 recites a computer system including a memory system having a plurality of memory modules, at least some of which include an activity sensing device and a module power controller that is responsive to the output of the activity sensing device. Independent claim 100 recites a method of controlling power including individually measuring activity in response to memory commands in at least some memory modules and directing at least one of the memory modules into a reduced power state when it is determined that activity of the memory module is not of a desired level. For at least these reasons, independent claims 1, 26, 48, 74, and 100 are patentable over Leddige in view of Wurzburg which, as explained above, fail to disclose a module power controller that is responsive to the output of an activity sensing device for a memory module. As explained above, none of the cited references, taken alone or in combination, disclose the combination of these claimed features.

Claims 2-25 depend from and include all limitations of Applicant's independent claim 1. Claims 27-47 depend from and include all limitations of Applicant's independent claim 26. Claims 49-73 depend from and include all limitations of Applicant's independent claim 48. Claims 75-99 depend from and include all limitations of Applicant's independent claim 74. Claims 101-124 depend from and include all limitations of Applicant's independent claim 100. These claims are also patentably distinguished over Leddige in view of Wurzburg because of their dependency on patentable independent claims and because of the additional limitations added by those claims.

All of the claims remaining in the application should now be allowed. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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